

ATTORNEY DOCKET NO.  
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SERIAL NO.  
09/414,082

2

1. **(Canceled).**

2. **(Previously presented)** The method of Claim 3, wherein determining comprises receiving qualifying information over the communication path, the qualifying information indicating a degradation or loss of signal on one of traffic paths.

3. **(Previously presented)** In a TDM network having a plurality of switchable traffic paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source, each one of said traffic paths having a receive circuit;

communicating qualifying information over a communication path that is separate from the traffic paths and couples two or more receive circuits, wherein the qualifying information describes performance characteristics of the TDM traffic received by one or more receive circuits;

configuring a TDM switch to provide a route to a common destination for each one of the traffic paths;

determining a qualified copy of the traffic based on qualifying information that is exchanged between two or more receive circuits; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to a common destination.

4. **(Previously presented)** In a TDM network having a plurality of switchable paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source, each one of said paths having a receive circuit;

configuring a TDM switch to provide a route to a common destination for each one of the paths;

determining a qualified copy of the TDM traffic based on information exchanged between two or more receive circuits; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein determining is based upon the following criteria:

alarm indication signal (AIS),

loss of pointer (LOP), or

missing terminating circuit card; thereafter

bit error rate (BER) exceeding approximately  $10^{-3}$  in the path; thereafter

signal degradation (SD) resulting from a BER exceeding approximately  $10^{-9}$ .

5. **(Previously presented)** The method of Claim 3, wherein discarding comprises setting a kill-bit to indicate whether the traffic should be switched through or discarded.

6. **(Previously presented)** In a TDM network having a plurality of switchable traffic paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source, each one of said traffic paths having a receive circuit;

communicating qualifying information on a communication path coupling the receive circuits, wherein the communication path is separate from each of the traffic paths and the qualifying information describes performance characteristics of the TDM traffic received by one or more receive circuits;

configuring a TDM switch to provide a route to a common destination for each one of the traffic paths;

determining a qualified copy of the traffic before the copies reach the TDM switch based on qualifying information that is exchanged between two or more receive circuits; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination.

7. **(Previously presented)** The method of Claim 6, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

8. **(Previously presented)** The method of Claim 6, wherein the TDM traffic is carried in VT or STS-1 formats within a transmission signal.

9. **(Previously presented)** The method of Claim 6, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

10. **(Canceled)**

ATTORNEY DOCKET NO.  
062891.0340

SERIAL NO.  
09/414,082

11. **(Previously presented)** The apparatus of Claim 12, wherein each receive circuit is operable to qualify TDM traffic by receiving qualifying information over the communication path, the qualifying information indicating a degradation or loss of signal on one of the traffic paths.

12. **(Previously presented)** In a TDM network having a plurality of traffic paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined traffic paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit, based on qualifying information exchanged between two or more receive circuits, to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard the TDM traffic having an accompanying kill-bit that has been set; and

a communication path coupling two or more receive circuits, the communication path separate from the traffic paths and operable to convey qualifying information for TDM traffic received by one or more receive circuits, wherein the qualifying information comprises a keep-alive signal transmitted by one of the receive circuits.

13. **(Previously presented)** In a TDM network having a plurality of paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit, based on information exchanged between two or more receive circuits, to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard the TDM traffic having an accompanying kill-bit that has been set; and

a communication path between the receive circuits and operable to convey qualifying information for the paths, wherein each receive circuit qualifies the TDM traffic based upon the following criteria:

- alarm indication signal (AIS),
- loss of pointer (LOP), or
- missing terminating circuit card; thereafter
- bit error rate (BER) exceeding approximately  $10^{-3}$  in the path; thereafter
- signal degradation (SD) resulting from a BER exceeding approximately  $10^{-9}$ .

14. **(Previously presented)** In a TDM network having a plurality of traffic paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined traffic paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit, based on information exchanged between two or more receive circuits over a communication path, to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard the TDM traffic having an accompanying kill-bit that has been set; and

the communication path coupling the receive circuits, the communication path separate from the traffic paths and operable to convey qualifying information for the traffic paths between two or more receive circuits, wherein each receive circuit is further operable to:

receive TDM traffic associated with a virtual tributary (VT);

determine if the TDM traffic is pass-through based on the VT and qualifying information received by that receive circuit over the communication path, wherein the qualifying information describes performance characteristics of TDM traffic received by one or more receive circuits;

if the TDM traffic is not pass-through, set an accompanying kill-bit if the receive circuit is stand-by for the particular VT.

15. **(Previously presented)** The apparatus of Claim 14, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

16. **(Previously presented)** The apparatus of Claim 14, wherein the TDM traffic is carried in VT or STS-1 formats within a transmission signal.



17. **(Previously presented)** The apparatus of Claim 14, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each receive circuit to the destination.

18. **(Canceled)**

19. **(Previously presented)** The program of Claim 20, wherein determining comprises receiving qualifying information at the receive circuit, the qualifying information indicating a degradation or loss of signal on one of the traffic paths.

20. **(Previously presented)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source;

determining, at the receive circuit, whether the received copy is a qualified copy of the traffic based on qualifying information received from another receive circuit over a communication path that is separate from the traffic paths and that couples two or more receive circuits, wherein the qualifying information describes performance characteristics of the TDM traffic received by one or more of the receive circuits;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein determining whether the received copy is a qualified copy based on qualifying information comprises detecting a loss of a keep-alive signal.

21. **(Previously presented)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source;

determining, at the receive circuit, whether the received copy is a qualified copy of the traffic based on information received from another receive circuit;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein determining is based upon the following criteria:

alarm indication signal (AIS),

loss of pointer (LOP), or

missing terminating circuit card; thereafter

bit error rate (BER) exceeding approximately  $10^{-3}$  in the path; thereafter

signal degradation (SD) resulting from a BER exceeding approximately  $10^{-9}$ .

22. **(Previously presented)** The program of Claim 21, wherein discarding comprises setting a kill-bit to indicate whether the traffic should be switched through or discarded.

23. **(Previously presented)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source;

determining, at the receive circuit, whether the received copy is a qualified copy of the traffic based on qualifying information received from another receive circuit over a communication path that is separate from the traffic paths and that couples two or more receive circuits, wherein the qualifying information describes performance characteristics of the TDM traffic received by one or more of the receive circuits;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy.

24. **(Previously presented)** The program of Claim 23, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

25. **(Previously presented)** The program of Claim 23, wherein the TDM traffic is carried in VT or STS-1 formats within a transmission signal.

ATTORNEY DOCKET NO.  
062891.0340

SERIAL NO.  
09/414,082

14

26. **(Previously presented)** The program of Claim 23, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each of the traffic paths to the destination.

27. **(Currently amended)** In a TDM network having a plurality of switchable traffic paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source, each one of said traffic paths having a receive circuit;

configuring a TDM switch to provide a route to a common destination for each one of the traffic paths;

determining, based on qualifying information communicated between two or more receive circuits over a communication path that is separate from the traffic paths and that couples the two or more receive circuits, a qualified copy of the traffic, wherein the qualifying information describes performance characteristics of the TDM traffic received by one or more of the receive circuits; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein each receive circuit is operable to:

receive TDM traffic associated with a virtual tributary (VT);

determine if the TDM traffic is pass-through based on the VT and qualifying information received by a particular receive circuit over the communication path; and

if the TDM traffic is not pass-through, set an accompanying kill-bit if the receive circuit is stand-by for the particular VT.

28. **(Previously presented)** In a TDM network having a plurality of traffic paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined traffic paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard, based on information exchanged between two or more receive circuits, the TDM traffic having an accompanying kill-bit that has been set; and

a communication path that is separate from the traffic paths and couples two or more receive circuits, the communication path operable to convey qualifying information for the traffic paths that describes performance characteristics of the TDM traffic received by one or more of the receive circuits, wherein a particular receive circuit is further operable to determine whether to set the kill-bit based on the qualifying information.

29. **(Previously presented)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source;

determining, at the receive circuit, whether the received copy is a qualified copy of the traffic based on qualifying information received from another receive circuit over a communication path that is separate from the traffic paths and couples two or more receive circuits, wherein the qualifying information describes performance characteristics of the TDM traffic received by one or more of the receive circuits;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein the receive circuit is one of a plurality of receive circuits, each receive circuit associated with a particular one of the traffic paths, and each receive circuit operable to:

receive TDM traffic associated with a virtual tributary (VT);

determine if the TDM traffic is pass-through based on the VT and qualifying information received by that receive circuit; and

if the TDM traffic is not pass-through, set an accompanying kill-bit if the receive circuit is stand-by for the particular VT.



30. **(Previously presented)** The method of Claim 4, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

31. **(Previously presented)** The method of Claim 4, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

32. **(Previously presented)** The method of Claim 6, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

33. **(Previously presented)** The method of Claim 6, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

34. **(Previously presented)** The method of Claim 27, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

35. **(Previously presented)** The method of Claim 27, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

36. **(Previously presented)** The apparatus of Claim 13, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

37. **(Previously presented)** The apparatus of Claim 13, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

38. **(Previously presented)** The apparatus of Claim 14, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

39. **(Previously presented)** The apparatus of Claim 14, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

40. **(Previously presented)** The apparatus of Claim 28, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

41. **(Previously presented)** The apparatus of Claim 28, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

42. **(Previously presented)** The program of Claim 21, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

43. **(Previously presented)** The program of Claim 21, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

44. **(Previously presented)** The program of Claim 23, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

45. **(Previously presented)** The program of Claim 23, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

46. **(Previously presented)** The program of Claim 29, wherein the traffic paths comprise a first traffic path in a first direction around a SONET UPSR and a second traffic path in a second direction around the SONET UPSR.

47. **(Previously presented)** The program of Claim 29, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

48. **(Previously presented)** In a TDM network having a plurality of switchable traffic paths to a common destination, a system comprising:

means for receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined traffic paths originating at the traffic source, each one of said traffic paths having a receive circuit;

means for communicating qualifying information over a communication path that is separate from the traffic paths and couples two or more receive circuits, wherein the qualifying information describes performance characteristics of the TDM traffic received by one or more receive circuits;

means for configuring a TDM switch to provide a route to a common destination for each one of the traffic paths;

means for determining, based on information exchanged between two or more receive circuits, a qualified copy of the traffic; and

means for discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein the means for determining comprises means for detecting a loss of a keep-alive signal at one of the respective receive circuits.

49. **(Currently amended)** The method of **Claim** ~~**claim**~~ 3, wherein determining **comprises** ~~**comprising**~~ receiving qualifying information over the communication path, the qualifying information indicating a degradation or loss of signal on one of the traffic paths.

50. **(Currently amended)** The apparatus of **Claim** ~~**claim**~~ 12, wherein each receive circuit is operable to qualify TDM traffic by receiving qualifying information over the communication path, the qualifying information indicating a degradation or loss of signal in one of the traffic paths.

51. **(Currently amended)** The program of **Claim** ~~**claim**~~ 20, wherein determining **comprises** ~~**comprising**~~ receiving qualifying information at the receive circuit, the qualifying information indicating a degradation or loss of signal on one of the traffic paths.